

**Remarks/Arguments**

This Amendment is responsive to the Office Action of October 20, 2004 rejecting Claims 4-11 13-20, 22 and 23, which are pending in the application. Process Claims 24 and 25 have been added with this response. Thus, these claims are pending along with the afore-mentioned claims.

As presently claimed, the invention is directed to an improvement in wipes of the type used for manual clean room use in the electronics fabrication industry (Claims 20, 23, and now Claim 24). The wipes are low VOC and metallic ion free. Process Claims 24 and 25 relate to a process for cleaning surfaces in electronic clean rooms using a wipe of the type embraced by Claims 20 and 23.

In paragraph 1 of the Office Action the Examiner withdrew all rejections based upon prior art previously cited and considered the phrase "consisting essentially of" as excluding metals and ions. However, the claims were believed unpatentable over new art which is now of record.

**Office Action Paragraph 3**

**Rejection of Claims 4-9, 13-15, 17-19 and 23 Under 35 U.S.C. §103(a)**

**Over Morin, et al US 6,189,189 and Wilkinson, et al EP 0 830,890**

**Examiner's Comments**-In paragraph 3, the Examiner rejected the above claims, and presumably would reject newly added Claims 24 and 25, as unpatentable over Morin, et al US 6,189,189 in view of Wilkinson, et al EP 0 830 890. Morin, et al was cited as showing low contaminant clean room wipes which may be saturated with a desired solvent ( col. 7, lines 15-21). Other disclosure in Morin, et al was cited as a basis for rejecting Claims 10 and 13-16, e.g., regarding the use of polyester fiber fabric and a sponge as a substrate material.

Wilkinson, et al EP' 890 was cited as disclosing the use of surfactants in liquid/supercritical CO<sub>2</sub> in electronic cleaning operations, e.g., silicon wafer cleaning. Tetramethyl decyne diol and dimethyl octynediol are listed as representative of the surfactants.

The Examiner concluded it would have been obvious to use the acetylenic alcohols of Wilkinson, et al as the alcohol of choice in the wipes of Morin, et al, e.g., as set forth in Claims 8 and 9. The alleged motivation for using the acetylenic diol, in the Examiner's view, was that they were suited for cleaning in electronic applications.

#### Applicants' Response

Applicants assert that the combination of Morin, et al and Wilkinson, et al do not make a *prima facie* case of obviousness under the standards of 35 U.S.C. §103(a), because there is no underlying motivation of purpose in either reference that would direct one skilled in the art to use the particular acetylenic alcohol in Wilkinson, et al in place of isopropyl alcohol, or for that matter any other alcohol, in the wipe of Morin, et al. In this regard, Applicants' request the Examiner to reconsider the disclosure in Morin, et al and Wilkinson, et al in light of Applicants' claimed invention.

It is agreed that Morin, et al disclose wipers which may be used for cleaning surfaces in electronic clean rooms. The disclosure at Col. 1, lines 27-37 is particularly relevant to the requirements of a wiper substrate for electronic clean room, as well as other applications.

The relevant citation is as follows:

"These wipers are utilized for a number of different applications, including cleaning within clean rooms, automotive painting rooms and other cleanroom environments. Each different application emphasizes certain standards these types of wipers should attain. For example, for wipers utilized in clean rooms, stringent performance standards must be met. These standards are related to sorbency and contamination, including maximum allowable particulate, unspecified extractable matter and individual ionic

contaminants. The standards for particulate contaminant release are especially rigorous and various methods have been devised to meet them."

This disclosure makes it clear that Morin, et al are concerned with the properties of the wiper substrate in the specified applications, i.e., that the wiper substrate not contribute to contamination, because of lint and other extractables, e.g., ionic contaminants, etc. Morin, et al and are not concerned with the saturants that may be used with the wiper, e.g., alcohols, organics, etc, that may be impregnated in the wiper substrate. Their only concern is that their wiper, i.e., the substrate not contribute to contamination in the clean room, paint room, etc. by virtue of contact with the saturant. The test described at col. 4, lines 55 -61 illustrates this point wherein Morin, et al determine the level of extractable contamination associated with the wiper by contacting the wiper with various components, e.g., water, solvent, etc.

With regard to the saturants suited for impregnation in their wiper substrate, Morin, et al indicate at col. 7, lines 15-35 that because of the low amount of extractables in their wiper, various saturants may be added to the wiper for the prescribed application. The relevant disclosure is as follows:

"Further, the cleanroom wipers of the present invention demonstrate good dimensional stability, i.e. they remain relatively flat and do not roll up after laundering. The cleanroom wipers find utility in virtually any environment where a low contaminate, high absorbance wiping cloth is desired, such as in semiconductor and pharmaceutical clean rooms, and in preparation of surfaces for painting or other coating. The wipers may be presaturated with a desired solvent and sold in sealed dispensers, as is well known in the art. Suitable solvents include water, organic solvents such as naphtha, and aqueous solutions of water miscible organic solvents, in particular solutions of alcohols, such as C<sub>1</sub> -C<sub>8</sub> alcohols, especially isopropanol, and water. Of particular interest are wipers presaturated with a solution of isopropanol and water, especially 1 to 99 wt. % isopropanol/water solutions. The solvent composition may also contain a surfactant and/or other additives selected for their cleaning characteristics. By way of example, additional solvents and packages for pre-saturated wipers may be found in the following references: U.S. Pat. No. 3,994,751; U.S. Pat. No. 4,627,936; U.S. Pat. No. 4,639,327; U.S. Pat. No. 4,998,984; U.S. Pat. No. 5,145,091; U.S. Pat. No. 5,344,007

and JP 6[1994]-48475. Alternatively, the wipers may be sealed in air tight packages while dry.”

In terms of Applicants’ claims it had already been established that alcohols, e.g., isopropyl alcohol, had been used in wipers of the type taught by Morin, et al (Applicants specification page 1, lines 29-22) for electronic applications. Such alcohols were found to contribute to significant levels of VOC and have been ruled out by Applicants’ claim language “low volatile organic chemical content” found in Claims 20 and 23. There is no motivating purpose or direction in Morin, et al to select other alcohols or saturants other than isopropyl alcohol for their clean room wipers. In this regard, Applicants request the Examiner to simply note the broad list of patents in the Morin, et al disclosure that provide possible saturants for use with their wiper substrate. Certainly there is no direction to use an acetylenic alcohol based upon any disclosure in Morin, et al.

Wilkinson, et al disclose **super critical** CO<sub>2</sub> cleaning of electronic parts. The relevant disclosure with respect to surfactant incorporation, i.e., acetylenic diols is as follows:

“A family of surfactants have been identified which are soluble in liquid/supercritical CO<sub>2</sub> and have surface active properties. Specifically, they reduce the interfacial tension of hydrophile/CO<sub>2</sub> compositions and improve the uptake of water by CO<sub>2</sub>”

Applicants’ submit that there is nothing in the disclosure of Wilkinson, et al that would motivate one concerned with wipers for clean rooms (i.e., Morin, et al) to employ the surfactants employed by Wilkinson, et al in the Morin, et al wiper. Supercritical CO<sub>2</sub> cleaning is conducted at **high pressure** in a **closed chamber**, such as a reaction chamber. The acetylenic diol is added to the mixture of CO<sub>2</sub> and water to facilitate water uptake by the liquid CO<sub>2</sub>. This is done at very high pressures, e.g., 2000 psi and above. Note the pressures listed in Wilkinson, et. al., in its Tables 1, 2 and 3, which run from **1200 psi to 4590 psi**. **Certainly, these very controlled extreme conditions cannot be equated to the use of**

**wipes in a manual manner or uncontrolled open room manner.** Even most of the temperatures are well above what could be easily tolerated for manual use, note elevated temperatures of 35 to 65°C, as well as the 25°C examples. **Super critical conditions are just that; super (or extreme) conditions, well beyond normal temperatures and pressures, that can only be achieved under very controlled, closed conditions.** It is commonly appreciated, that super critical conditions are sufficiently extreme **that materials alter their physical properties from what is usually attributed to them.** Thus, gases assume a fluid state, like a liquid, and **exhibit properties not observed in the non-super critical state, such as normally gaseous CO<sub>2</sub> being a desirable fluid solvent.** Applicants assert that equating teachings from a supercritical, extreme conditions description to a wipe description, typically used in ambient, manual conditions, is not reasonable, **nor can the properties of materials under supercritical conditions be extrapolated to the properties of those same materials under non-super critical conditions.** Thus, the Wilkinson, et. al. teaching provides no suggestion or motivation for its combination to wipers for cleaning surfaces in electronic clean rooms.

The Examiner's observation that the acetylenic diols are used in cleaning electrical components based upon the teachings in Wilkinson, et al does not advance the argument that the acetylenic diol be used to replace the alcohol, particularly, isopropyl alcohol, as a saturant in the wiper of Morin, et al for the intended benefit afforded Applicants in their claimed invention. There is nothing in Wilkinson, et al that offers the requisite motivation to one skilled in the art to substitute an acetylenic diol designed for facilitating water uptake in the extremes of super critical CO<sub>2</sub> cleaning in place of isopropyl alcohol for the Morin, et al clean room wipes. Absent a teaching suggesting the combination to achieve the claimed invention, a rejection under 35 U.S.C. §103(a) cannot be supported.

Paragraph 4

Rejection of Claims 20 and 22 Under 35 U.S.C. §103(a) over Morin, et al US 6,189,189, Wilkinson, et al EP 0 830,890 and Watts, et al EP 0 389 612.

In paragraph 4 of the Office Action, the Examiner continued the rejection of independent Claims 20 and 23, and presumably process Claims 24 and 25, on the basis of the added subject matter of Watts, et al '612.

Examiner's Comments-Watts, et al is directed to hydraulically entangled wet laid webs for wipers in clean rooms and concluded from that disclosure that it would have obvious to employ the wipe of Watts, et al in combination with Morin, et al and Wilkinson, et al.

Applicants' Response

The relevance of Watts, et al to the claimed invention is that of offering another type of substrate for the cleaning wipe offered and claimed by Applicants. Applicants' agree that substitution of the Watts, et al substrate for use in an electronic clean room would have been obvious with respect to the dependant claims, which specify certain characteristics of the substrate, e.g., Claims 10, 13-15. However, regarding the claim from which these claims depend, Watts, et al teaches nothing more than Morin, et al in terms of independent Claims 20, 23 and 24 when it comes to the saturant employed in the clean room wipe.

Examiner's Comments-Dependent claims 4-7 and independent Claim 23 were deemed to be unpatentable over the cited references (bottom page 4) on the basis that the amount of acetylenic diol present in the wiper would have been one of optimization.

Applicants' Response

With respect to the vapor pressure, given that the Wilkinson, et al acetylenic diols are one in the same as claimed by Applicants, the use of those acetylenic diols would meet the claims. No objection with respect to this position is raised by Applicants, because Applicants' objection is based upon the more fundamental difference, as previously argued regarding the lack of combinability of Morin, et. al. and Wilkinson, et. al.

With regard to the percentages of acetylenic diols employed in the aqueous solution and set forth in the claims, it is respectfully suggested that the references must suggest some range of use to reach a conclusion that the claimed range would have been one of optimization. A rejection under 35 U.S.C. §103(a) must be supported on some teaching in the references and the Examiner has not cited those teachings.

Conclusion

Summarizing, the rejection of independent Claims 20 and 23, as well as newly added independent Claim 24, under 35 U.S.C. §103(a) based upon Morin, et al in view of Wilkinson, et al, must fail because a *prima facie* case of obviousness has not been made. It is obvious from the disclosure in Morin, et al that the selection of saturants for the various wiper applications is at the direction of the end user. Morin, et al offer no motivation or direction to use specific saturants, e.g., specific alcohols, organic solvents, etc. in prewetting the wiper substrate. Wilkinson, et al is directed to nonanalogous art dealing with the use of an acetylenic diol for enhancing CO<sub>2</sub>/H<sub>2</sub>O absorption in the extreme conditions of supercritical CO<sub>2</sub> cleaning. The Examiner has pointed to no commonality in the teachings that would lead one skilled in the art to use the specific acetylenic diols claimed by Applicants in their wipes or in the process of wiping the surfaces found in electronic clean rooms and the removal of contaminants. Watts, et al add nothing that would direct one to use the acetylenic diol of

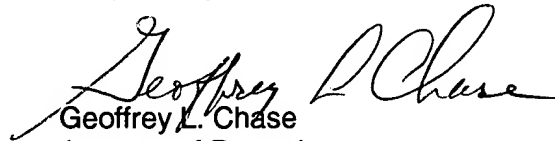
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Wilkinson, et al with their substrate for electronic clean rooms. Absent teachings suggesting a common purpose or motivation to combine the references cited by the Examiner, there can be no *prima facie* case of obviousness under 35 U.S.C. §103(a).

The rejection of all Claims dependant from independent claims 20, 23 and 24 must also fail for reasons that a *prima facie* case of obviousness has not been made with respect to the independent claims.

Respectfully submitted,

A handwritten signature in cursive script, reading "Geoffrey L. Chase".

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